In the claims:

For the Examiner's convenience, all pending claims are presented below with changes

shown in accordance with the mandatory amendment format.

1.   (Currently Amended) For a computer-executable program that operates on a data

structure, where the data structure must have a required state at selected program points, a

computer-implemented method of transforming said program comprising:

(A)   analyzing the program to determine the state of said data structure at said selected

program points;

(B)   partitioning said determined state at each said program point into components that

may each be set separately;

(C)   determining operations to be inserted into the program in order to set each

component of the state at each selected program point based on flow equations for an up-safety

and a down-safety of setting the state at each selected program point, wherein the operations

assure that the data structure will be in an accurate the required state at the selected program

points; and

(D)   placing said operations to eliminate partial redundancies of said operations.

2.   (Currently Amended) The computer-implemented method of claim 1, wherein the data

structure stores items on a first-in-last-out basis.

3.   (Currently Amended) The computer-implemented method of claim 2, wherein the states

of the data structure are represented as paths on a tree of nodes where:

(A) each path traverses the tree towards the root; and

(B) each node on the path represent a component of the state.

4.   (Currently Amended) The <u>computer-implemented</u> method of claim 2, wherein the data structure represents actions to be taken by the program if an exception occurs.

5.   (Currently Amended) The <u>computer-implemented</u> method of claim 4, wherein the selected program points are the points of execution immediately before instructions that might cause an exception.

6.   (Currently Amended) The <u>computer-implemented</u> method of claim 4, further comprising representing the actions to be taken as exception paths in a graph.

7-9.   (Cancelled)

10.   (Currently Amended) For a computer-executable program that operates on a data structure, where the data structure must have a required state at selected program points, a <u>computer-implemented</u> method of transforming said program comprising:

   (A)   analyzing the program to determine the state of an instance of said data structure at said selected program points;

   (B)   partitioning said instance of said data structure into components;

   (C)   determining a set of one or more operations to be inserted into the program in order to set each component of the state at each selected program point <u>based on flow equations</u> <u>for an up-safety and a down-safety of setting the state at each selected program point</u>, wherein the operations assure that the data structure will be in <s>an accurate</s> <u>the required</u> state at the selected program points;

   (D)   computing placement of the set of operations to eliminate partial redundancies; and

(E)   inserting the set of operations at said program points according to the computed placement.

11.   (Currently Amended) The <u>computer-implemented</u> method of claim 10 wherein the data structure is an exception handling stack.

12.   (Currently Amended) The <u>computer-implemented</u> method of claim 11 wherein the components are a pointer to the exception handling stack and an exception handling data structure.

13.   (Currently Amended) A machine-readable medium having a set of instructions, which when executed by a set of one or more processors, causes said set of processors to perform operations comprising:

(A)   analyzing a program that operates on a data structure, which must have a required state at selected program points in the program, to determine the state of an instance of said data structure at said selected program points;

(B)   partitioning said instance of said data structure into components;

(C)   determining a set of one or more operations to be inserted into the program in order to set each component of the state at each selected program point <u>based on flow equations for an up-safety and a down-safety of setting the state at each selected program point</u>, wherein the operations assure that the data structure will be in ~~an accurate~~ <u>the required</u> state at the selected program points;

(D)   computing placement of the set of operations to eliminate partial redundancies; and

(E)   inserting the set of operations at said program points according to the computed placement.

14.   (Previously Presented)   The machine-readable medium of claim 13, wherein the data structure stores items on a first-in-last-out basis.

15.   (Currently Amended) The machine-readable medium of claim 14, wherein the states of the data structure are represented as paths on a tree of nodes where:

(A) each path traverses the tree towards the root; and

(B) each node on the path represent a component of the state.

16.   (Previously Presented)   The machine-readable medium of claim 14, wherein the data structure represents actions to be taken by the program if an exception occurs.

17.   (Previously Presented)   The machine-readable medium of claim 16, wherein the selected program points are the points of execution immediately before instructions that might cause an exception.

18.   (Cancelled)